

REMARKS

Claim 36 has been cancelled in response to the withdrawal of claim 36 at paragraph 7 of the Office Action. Claims 6, 13, 14, and 16 have been amended to overcome the § 112(2) rejections at paragraph 6 of the Office Action. Claims 1, 3, 6, 9-16, 21-28, 30, 32-35, and 37-41 are pending in the application. Claims 1, 3, 6, and 9-16 were previously allowed. No indication of a withdrawal of allowability, or a citation of any new art (as explained below), as required by MPEP § 706.04, was made in the Office Action. Accordingly, Applicant submits that claims 1, 3, 6, and 9-16 are still in condition for allowance. Reconsideration and withdrawal of the remaining rejections are requested in view of the following amendments and remarks.

The claims describe a system and method for cleaning boxes or containers used to hold semiconductor wafers, substrates, flat panel displays, and other flat articles. (See page 1, lines 1-15). The cleaning system includes at least one angle spray nozzle, and may also include straight spray nozzles, and a rotor having box holding positions for holding and rotating the boxes during cleaning. In a preferred embodiment, the straight spray nozzles spray fluid toward the center or spin axis of the rotor. The angle spray nozzles spray fluid at an angle relative to that of the straight spray nozzles to clean interior surfaces and corners of the boxes, as well as exterior surfaces of the boxes and the rotor itself. By using angle spray nozzles, improved cleaning of wafer boxes is achieved, since hard-to-reach areas on the boxes are better targeted by cleaning spray than in prior art systems, which use only straight spray nozzles.

Turning to the § 112(1) rejections at paragraph 2 of the Office Action, Applicant submits that there is adequate support in the specification for the rejected claims. With respect to claim 32, Figs. 14-20 clearly illustrate that boxes 52 are held in the rotor assembly 36 at positions spaced apart from a spin axis (or center of rotation) C of the rotor assembly 36, so that the boxes 52 revolve around the spin axis C (in direction A). Moreover, the specification states that the box holder assemblies 50 are equally radially spaced apart on the rotor assembly 36 (p. 8, lines 10-11), and that the boxes move in the direction of rotor rotation A (p. 21, lines 19-20). Thus, the specification provides adequate support for claim 32.

With respect to claim 21, Figs. 15-20 clearly show that the angle spray nozzles on manifold 406 direct spray toward a trailing interior side surface of a box 52 on the rotor 36 rotating in direction A. Moreover, the specification states that the angle spray nozzles 432 on the manifold 406 spray at an angle minus θ , to better cover and clean the leading exterior side walls and the trailing interior corners of the box 52 (p. 26, line 23-p. 27, line 3). Clearly, if the spray directed from the manifold 406 covers the leading exterior side walls (and the trailing interior corners) of the box 52, it will also cover the trailing interior side wall or surface of the box 52 when the box 52 rotates into a position where the spray is directed into the box 52. Furthermore, the specification states that the angled spray nozzles, oriented towards and/or away from the spin direction, are better positioned to spray leading and/or trailing surfaces, corners, and features of the box (p. 3, lines 17-20). Thus, the specification provides substantial support for claim 21.

Turning to the § 112(2) indefiniteness rejections at paragraphs 4 and 5 of the Office Action, the test for definiteness is whether the scope of the claim is clear to a hypothetical person possessing the ordinary level of skill in the pertinent art (see MPEP § 2171). Applicant submits that the scope of all of the claims is clear to a person possessing the ordinary level of skill in the art, and the claims are therefore definite.

With respect to the rejection of the system claims at paragraph 5 of the Office Action, these claims all include a rotor for holding a box, and one or more manifolds and/or nozzles for spraying a rinsing or cleaning fluid towards the rotor. These spray manifolds and/or nozzles are clearly the elements for cleaning the boxes. By spraying cleaning or rinsing fluid towards the rotor, which holds one or more boxes, the boxes are cleaned by the cleaning or rinsing fluid. As the claims are apparatus claims, no functional cleaning step language is necessary.

The boxes themselves are not elements of the cleaning system itself, but instead are the workpieces that are loaded into the cleaning system to be cleaned. Accordingly, the claims recite that the manifolds/and or nozzles spray the cleaning or rinsing fluid toward the rotor, which is an element of the cleaning system itself, and which includes positions for holding boxes to be cleaned. A person possessing the ordinary level of skill in the art would clearly understand that the spray manifolds and/or nozzles, which spray cleaning or rinsing fluid towards a rotor having positions for holding one or more boxes, are elements for cleaning boxes.

With respect to the rejection of the method claims at paragraph 6 of the Office Action, claims 6, 13, 14, and 16 have been amended to further clarify the steps for cleaning boxes.

Turning to the § 102 rejections at paragraph 9 of the Office Action, with respect to the rejections of claims 1, 3, 6, and 9-16, Applicant submits that these claims were previously allowed, and no indication of a withdrawal of allowability, or a citation of any new art, as required by MPEP § 706.04, was made in the Office Action. The cited reference, Thompson '113, is a Continuation of U.S. Patent No. 5,224,503, which was already relied upon by the Examiner to reject originally filed claims 1 and 6, in a February 8, 2002 Office Action. In response, the Applicant made arguments to overcome these rejections, and rewrote claims 2, 4, 5, 7, and, 8 into independent form. Claims 1, 3, 6, and 9-16 were then allowed by the Examiner. Because Thompson '113 is a Continuation of U.S. Patent No. 5,224,503, the disclosure in these two references is identical, and Thompson '113 is not new prior art. Accordingly, it is improper to reject previously allowed claims 1, 3, 6, and 9-16 over this old prior art which has already been overcome (see MPEP § 706.04). Thus, Applicant submits that claims 1, 3, 6, and 9-16 are still in condition for allowance.

Additionally, with respect to the § 102 rejections of claims 1, 3, 6, and 9-16, and of claims 21-28, 30, 32-35, and 37-41, Thompson '113 discloses spray nozzles that are directed "inward or directly toward the central axis of the processing chamber" (col. 6, lines 7-11). To illustrate, Fig. 7 of Thompson '113 shows all of the liquid spray nozzles 93 directed inwardly and pointing straight. None of the spray nozzles 93 are angled

with respect to the rotor 70, or with respect to one another, as claimed. Indeed, the claimed systems and methods were developed as an improvement over the straight-nozzle system disclosed in Thompson '113 (see pp. 2-3 of the application). Thus, all of the claims are believed to be in condition for allowance.

In view of the foregoing, it is submitted that the claims are in condition for allowance, and a Notice of Allowance is requested.

Respectfully submitted,

Perkins Coie LLP

Date: February 10, 2008

Kenneth H. Ohriner

Kenneth H. Ohriner

Registration No. 31,646

Correspondence Address:

Customer No. 34055
Perkins Coie LLP
Patent – LA
P.O. Box 1208
Seattle, WA 98111-1208
Phone: (310) 788-9900
Fax: (310) 788-3399